

Date:

Grade 7: Math

6.2 Probability: Theoretical Probability

- **Definitions.**

1. **Probability:** The likelihood of an event occurring.
2. **Outcome:** The result of an experiment.
3. **Theoretical Probability:** The probability that is calculated by analysing the possible outcomes rather than by experimenting.
4. **Experimental Probability:** The probability that is calculated through experimentation.

$$\text{Probability} = \frac{\text{Number of favorable outcomes}}{\text{Number of possible outcomes}}$$

- **Practice Problems.**

1. A coin is tossed. What is the probability of getting a:
 - a. Tail.
 - b. Head.
2. A dice is rolled. What is the probability of getting a:
 - a. number 4.
 - b. number 2.
 - c. number 8.
 - d. number less than 4.
 - e. number greater than 4.
 - f. prime number.
 - g. even and prime number.
 - h. odd number or a number less than 5.

3. Two coins are tossed. What is the probability of getting:
 - a. at least one tail.
 - b. at least one head.

4. A basket contains colored marbles. It has 4 blue, 2 red, 5 green, 8 yellow and 7 black marbles. A marble is drawn at random. Find the probability that the marble is:
 - a. red
 - b. green
 - c. yellow or black
 - d. not blue

5. Three coins are tossed.
 - a. List all possible outcomes.

 - b. What is the probability of getting at least one tail.
 - c. What is the probability of getting no heads.
 - d. What is the probability of getting one head and two tails.

6. A dice is rolled 1000 times. How many times will a 1 turn up on the dice?
 7. A dice is rolled 500 times. How many times will you get a number less than 5?
 8. A dice is rolled 450 times. How many times will you get the number 6?
 9. A dice is rolled 700 times. How many times will you get the number 2 or 5?
 10. Ms. Philip is a coin flipping expert. She flips and catches 2 coins simultaneously. But she always catches the coin in her right hand first. She flips 2 coins 1500 times.
 - a. How many times would you expect one head and one tail?
 - b. How many times would you expect tail in the right hand.
- **Homework:** Textbook page 418 #2, 3, 4 and page 422 #1, 4, 5